

## The Preventive Maintenance Series

Mike Dawson

Overhauling Corvair Rochester primary carburetors that are either 50 years old or approaching that milestone requires a significantly greater amount of time to produce a quality job than just a quick cleaning and installation of a minor kit. This article offers some suggestions learned from experience. For best results, everything must match from side to side and include at least an upgrade by adding a vapor vent to the pre-'64 models (noted below). Also change to the '64 and later venturi cluster if you have a pre-'64.

All parts necessary for overhaul are available and average about \$90.00 for a pair. This includes the basic kits, throttle shaft seals, fuel filters, base gaskets, and choke pull-offs. New throttle shafts are available for an additional \$20.00 per pair, and choke shafts are \$11.00 per pair. Other small parts are available new, as well as bushing kits if the bases are worn badly where the shafts ride. If you do the work yourself and include the steps listed in this article, you will spend about 4 hours in the process. Of course, some carburetors are like new and will not need all of the parts and time, but that is usually the exception. The following are steps you will want to consider which enhance basic cleaning and are in no particular order; however, many items are based on total disassembly of the carburetor. If you do total disassembly, you could then glass bead (do not sandblast) the body and top (65 psi maximum), and you could even use the special carburetor paint sold by Eastwood.

- Check the throttle shafts for wear. To remove the throttle valve from the shaft, use a small burr (like a Dremel) to round over the protruding end of the brass screws before removing them. Either install throttle shaft seal kits or install new shafts to provide the best possible protection against vacuum leaks. When working on 62-69 models, be sure the valve is seated without the idle speed screw installed and that the small circular cutout is centered over the transition slot before you tighten the screws. Use blue Loctite on the screws. You can use sandpaper or a file to dress up the surface where the shaft seals will ride. Make sure the lever is tight on the throttle shaft; they can be welded if necessary. You can also weld the rod holes shut and drill new holes if they are worn oversize or switch carburetors from side to side, which moves the rods to unused holes.
- Straightedge the mating surface of the air horn (top) because people over-tighten the mounting nut. Straightedge the mating area of the venturi cluster and carefully file the base of the body (or use sandpaper on a sheet of glass) where it mounts to the head to ensure it has no dents or deep scratches. Use a thin gasket above and below the insulator when installing the carburetors back on the engine. Check the choke shaft rotation, and if necessary loosen the screws and re-center to eliminate any binding. Badly worn shafts or loose peening can make smooth movement impossible; new shafts are available from CCP.
- Remove the main jet to clean under it. This is particularly important if there are any deposits in the bowl because fuel flow will be restricted by deposits between

the jet and the main well. Use a good straight-blade screwdriver that fits tight in the jet, place the body on a smooth hard surface (vice or on the concrete floor), and strike sharply several times with a hammer. The jet should screw out. If not, drill out with a #3 bit and run a ¼-28 tap in the hole before cleaning the passage. Upgrading to a .052 main jet (#55 drill bit) is a good idea for today's fuel.

- The venturi clusters need to be matched between the two carburetors for the best idle. The casting numbers are meaningless, so use the small numbered drill bits to do the match checking. The smaller of the two tubes is the idle pickup and should be between .023-.029. The idle air speed is the larger of the two holes on the top and should be between .074-.080. The smaller hole on the top is the high-speed air bleed and should be approximately .045. There is a brass siphon breaker installed that is approximately .056. Again, make sure the two clusters are matched in their various metering areas. Be sure you check that the four radial discharge nozzles are clear and that the idle pickup tube is clear. Use the straw with a can of carburetor cleaner inserted in the idle pickup tube hole (under the cluster in the body) to verify a clear passage to the idle discharge. The holes for the two cluster screws must be clear of water & carburetor cleaner or they will not let the screws loosen next time. I also like to use anti-seize on the cluster screws. Check that the aluminum main well insert is seated flush in the recess, and check the idle mixture screw tip and its seat; the tips can be broken off in the seat or tightened excessively, damaging the needle and seat.
- If you have power enrichment valves, use a paperclip or wire and a small inspection mirror to check the passage from the bottom of the valve seat to the float bowl. Use the straw with a can of carburetor cleaner to verify it is open. If there were deposits in your bowl, there may be an obstruction in this passage.
- Check the accelerator pump vertical shaft where the pump cup rides; it must be smooth and free of deposits. Check the vertical discharge shaft for deposits; verify with the carburetor cleaner straw. There are two very small discharge holes for the accelerator pump which are adjacent to the pump discharge needle. Check them with a wire pulled out of a wire brush. Verify that your new discharge needle is the correct height; when installed in the hole it should be slightly below the level of the mating surface of the bowl. Make sure your new gasket has the cutout for the needle to rise into. The external lever and rod that actuate the pump usually are worn at the hole; new ones are now available from CCP, or you can weld the hole shut and re-drill with a #21 bit. These two parts (if worn badly) will affect both the pump action and the idle return (provided by the internal return spring under the pump).
- Check the fit of the new needle and seat by sliding the needle in and out while keeping the needle at a slight angle like the float will do. It should be smooth and not bind or feel scratchy. All the new seats are larger than the original GM, so you can change the float drop from 1 3/4" to 1 1/2" to eliminate possible flooding after long periods of storage when the carburetors dry out and you restart.

- In 1964, a vapor vent was added to help hot restart problems (worse today due to ethanol). Make the initial adjustment according to the book, but the final adjustment for this vent must be made after you have installed and balanced the carburetors since your final hot idle speed affects how the vent opens. You can use an inspection mirror and your fingernail to make that adjustment with the engine cold and the chokes unhooked (after you are completely satisfied with the hot curb idle). If you have a pre-1964, you can add a vent as per a GM service bulletin (885 dated May 1, 1963): looking at the side of the body with the idle mixture screw, drill a 1/8" hole through the side of the body 3/8" left of the mixture screw and 3/8" above the boss where the nut & washer are positioned.
- Some carburetor kits come with additional parts such as balls, springs, and a choice of gaskets. Be sure to verify the correct items for your year. **Carefully check your parts from side to side** and against the included instructions or the appropriate shop manual. It is entirely possible that someone before you may have miss-matched parts (or even years) when they did service work. Start with factory adjustments, but be prepared to modify since all engines will vary in their performance.

Finally, check all vacuum lines such as balance tubes, PCV valves, fixed orifices, and modulator hoses. The wrong PCV valve or a drilled-out orifice can make a smooth idle impossible. Balance the carburetors at idle and off idle with either a vacuum gauge or Uni-Syn.